X-RAY TUBES

AND

ACCESSORIES

Macalaster, Wiggin Company

BOSTON, MASSACHUSETTS

CHICAGO, ILLINOIS

X-RAY TUBES
AND
ACCESSORIES

CHICAGO OFFICE AND FACTORY
160-164 EAST LAKE STREET
FORMERLY G. HEINZ COMPANY

MANUFACTURED BY

Macalaster, Wiggin Company

605 Sudbury Building
Boston, Mass.

References

Customers unknown to us must give satisfactory references; send draft with order; or we will ship C. O. D., charges for return of money to be borne by purchaser.

Terms

Prices in this bulletin are net, and supersede all others, except where cash accompanies order, in which case a discount of five per cent will be allowed. Prices are subject to change without notice.

In case of C. O. D. shipments, where a draft for twenty-five per cent. of bill accompanies order, the same discount will be allowed.

Remit by Express or Post Office Money Order or by New York draft. Add twenty-five cents to face of all checks, except on New York or Boston, to cover collection charges.

Safe delivery of X-ray Tubes will be guaranteed through express or freight for an extra charge of five per cent. of catalogue price, *which must accompany the order.*

Goods will be delivered f.o.b. freight or express, Boston, Mass. No charge for packing. Each piece of apparatus is carefully packed and no allowance will be made for loss or breakage in transit.

Western Union Telegraph code used.

When in Boston we will be glad to have you make your headquarters at our office.

Announcement

ALL TUBES listed on the following pages are equipped with an automatic vacuum regulating device under license from Queen & Company, patent Number 594036. This patent covers all tubes which regulate automatically or to which an automatic regulator may be attached.

This device is of the greatest importance, as by its use the operator may manipulate his apparatus from behind his screening device and know that the tube will run with perfect steadiness and the vacuum remain constant. All tubes are made with the greatest care, very carefully tested, and are shipped in perfect condition.

We call special attention to our Coil Tubes, which are designed for the heaviest radiographic work. The targets are massive and so well supported that there is little or no danger of their breaking down. In case of puncture, the tubes are easy of repair.

Our factory facilities are of the finest. The tubes are "made in Boston" by experienced men aided by all modern facilities, we having the largest and best equipped factory in this country.

Although the science of x-ray tube manipulation is well known, we wish to add a few words, giving the result of our long experience. When a tube is new, do not run it too long on powerful apparatus. If the vacuum begins to lower, stop, and allow the tube to cool. It would be better in a new tube not to heat the target to a bright red. If a tube is pumped

so that it is moderately soft when first used, the life will be infinitely longer and much more use may be had from it than if it were dry and hard to start with.

It is generally conceded that when a tube is run in this way and thoroughly seasoned on the apparatus on which it is to be used that the picture made with it will have better detail and definition than that obtainable in any other way. The time of exposure also may be very materially lessened.

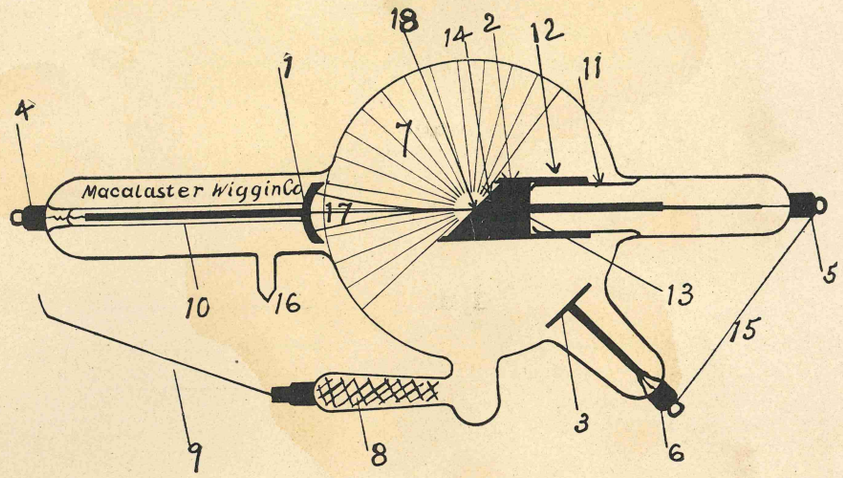
Adjustment

On running a new tube for the first time, set the swivel No. 9 (see page 5) so that its end is three or four inches from the cap No. 4. On trying the tube, if it lights up with a brilliant green fluorescence and the blue cathode stream is not visible, the vacuum is right.

If the sparks pass between the cap and the swivel arm, it means that the vacuum is high. If too high for the required work, allow the sparks to continue until the right degree of penetration is reached. If the vacuum be right, raise the swivel arm a trifle.

Do not run the tube with the swivel arm touching the cap for, if you do, so much gas will be driven off that the vacuum will be destroyed. Sparks should not be allowed to pass into the reducing bulb, No. 8, except when the vacuum is to be lowered. To raise the vacuum, connect the conducting cord from the negative side of the coil to the target, No. 5, of the tube and cord from the positive side to disc terminal, No. 6, of tube, and run current lightly until blue glow is all gone. Change connection to correct position and the tube will be found higher. If not high enough, repeat the operation.

For Reference

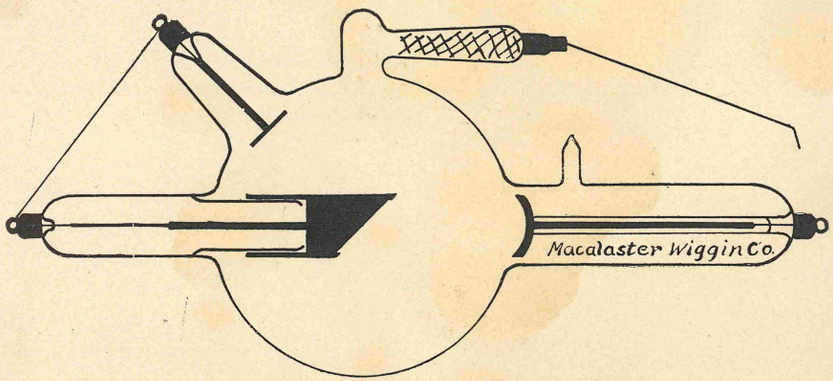


The illustration given herewith will, it is hoped, aid our customers in designating the various parts of a tube. When writing us, we would request that you use these terms.

No. 1. Cathode.
No. 2. Target. } Either or both may be connected as the anode.
No. 3. Disc terminal. }
No. 4. Cathode cap.
No. 5. Target cap.
No. 6. Disc terminal cap.
No. 7. X-ray hemisphere.
No. 8. Glass pocket containing reducing or vacuum regulating agent.
No. 9. Movable swivel.
No. 10. Glass support for cathode.
No. 11. Glass support for target.
No. 12. Target shell.
No. 13. Base metal of target.
No. 14. Platinum face of target.
No. 15. Wire connecting target and disc to make both terminals the anode.
No. 16. Pumping tip.
No. 17. Cathode stream, generally invisible.
No. 18. Focus spot.

For Coils of the Largest Capacity

No. 9.	Code Word, Caboz.	Diameter, 6 inches.	Price, $20.00
No. 15.	Code Word, Cabremos.	Diameter, 7 inches.	Price, 25.00
No. 16.	Code Word, Cacapar.	Diameter, 8 inches.	Price, 30.00



The No. 9 and No. 15 Tubes have been on the market in their present form for years and have given universal satisfaction to the most discriminating users.

The target is large and heavily backed with metal so that it is slow to heat. Tubes of this type are splendid for quick picture work and are unsurpassed for definition and detail.

The automatic regulating device is sensitive and the tube is under complete control at all times.

The heaviest terminals are securely supported by a method original with us. Where this method is used there is much less danger of puncture than with any other.

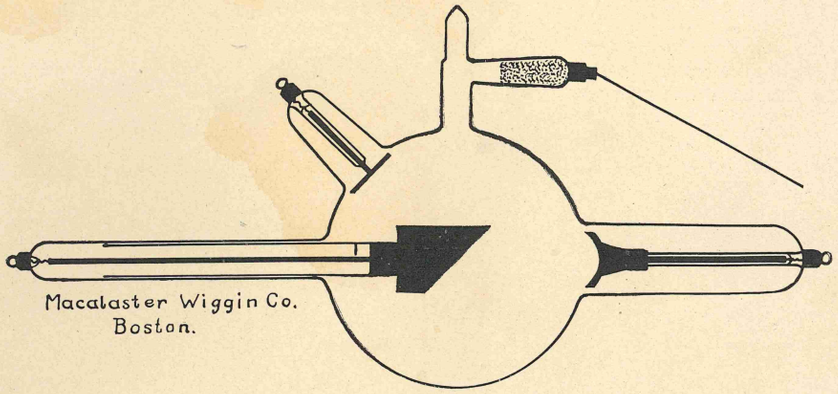
Steel Connecting Tapes

With Automatic Winding Device.

No. 133. Code Word, Finality. Price per pair, $2.25

For Heaviest Apparatus

No. 31.	Code Word, Direct.	Diameter, 6 inches.	Price, $25.00
No. 34.	Code Word, Directly.	Diameter, 7 inches.	Price, 30.00
No. 37.	Code Word, Dirimos.	Diameter, 8 inches.	Price, 35.00

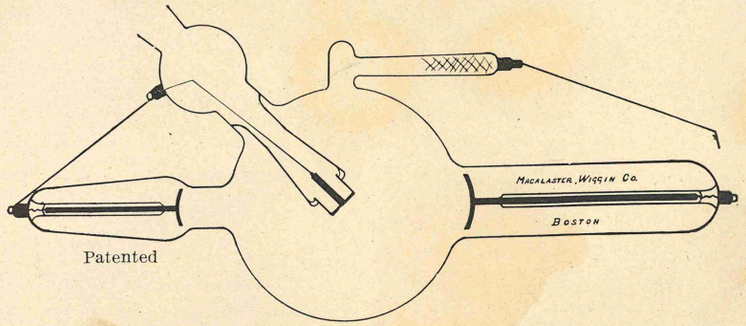


We here show a tube intended for use on the very heaviest apparatus. As is shown by the drawing, the target is extraordinarily massive and is supported by a heavy metal tube. The reflecting surface is of platinum in intimate contact with the heavy copper block. The cathode is turned from a solid rod of aluminum, is massive, and securely supported.

Great contrast and detail are procurable. Owing to the large mass of metal in the terminals and the special external heat radiating device (not shown in the cut) the vacuum remains stable and the same tube may be used for a number of exposures in quick succession without overheating. A greater milliamperage may be forced through this tube without danger of puncture or breaking down of vacuum, than through any other tube.

Water-Cooled Tubes

No. 32.	Code Word, Wafer.	Diameter, 6 inches.	Price, $35.00
No. 33.	Code Word, Waffen.	Diameter, 7 inches.	Price, 40.00



This Water-cooled Tube is recommended for places where it is desirable to make a number of heavy exposures in quick succession with the same tube, or for treatment work from heavy apparatus.

As will be seen from the illustration, the water reservoir is large and it will not be necessary to use running water. The tube should never, even for the shortest time, be run without the chamber being filled with water.

The target is of platinum, large, heavy, and the cold water is thus brought in direct contact with the surface of the target and the maximum cooling effect obtained.

As the heat is under absolute control, the vacuum never runs down unless the tube is punctured, and the glass does not blacken nearly as quickly as in ordinary tubes. It is especially useful in hospitals and for heavy duty on the largest apparatus; detail perfect.

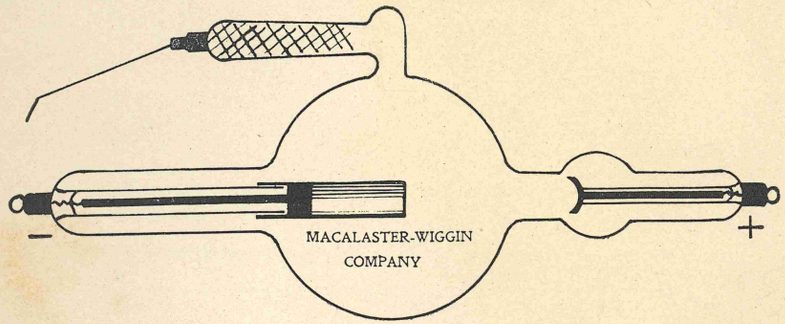
Rebuilding X-Ray Tubes

Price on application. In each case specify make and size of tube.

Special glass apparatus of all kinds built to order, by expert workmen.

Valve Tubes

No. 42. Code Word, Valiosa Price, $8.00



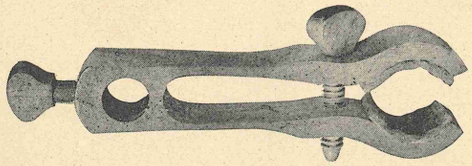
A Valve Tube should be used with all coils in which the inverse is not entirely cut out. A valve in series with an x-ray tube should be connected as follows:

The negative of coil to cathode end of x-ray tube, anode of tube to large terminal of valve, and small terminal of valve to positive of coil. When this is done, the current reaching the x-ray tube is unidirectional and produces a sharp image on either screen or plate. An automatic vacuum regulating device is always furnished.

Special Clamp

FOR HOLDING VALVE TUBES

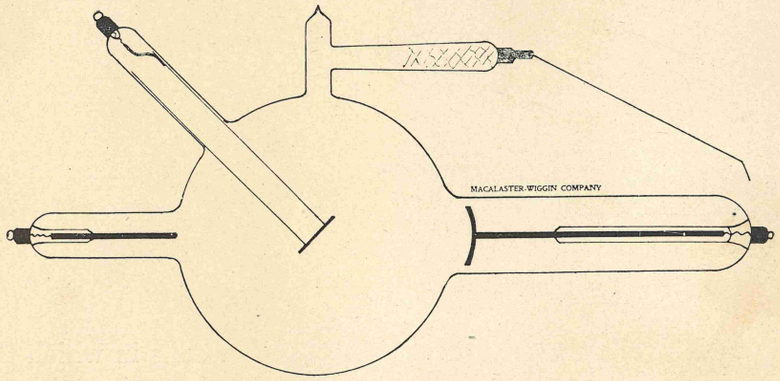
No. 43. Code Word, Valisnerie. Price, $2.00



This Clamp may be attached to any table or tube stand, holds the tube securely, and will be found to be of great assistance to the operator.

For Static Machines

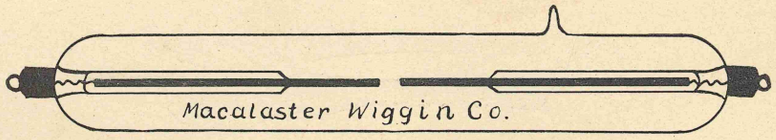
No. 4. Code Word, Bewaken. Diameter, $5\frac{1}{4}$ inches. Price, $12.50
No. 5. Code Word, Bewandelde. Diameter, 6 inches. Price, 13.50



For use on the ordinary static machine, no better tubes can be found than these. They may also be run on the small coils or those giving a small output of current. They are well proportioned, of good size, and capable of long and hard usage. By moving the connecting cord from the target to the disc terminal or connecting to either or both of them and by the use of multiple spark gaps in series with the tube, a great range of penetration may be obtained. The target is heavy enough for all ordinary purposes when used with the proper apparatus.

Oscilloscope

No. 88. Code Word, Orifice. Price, $2.00

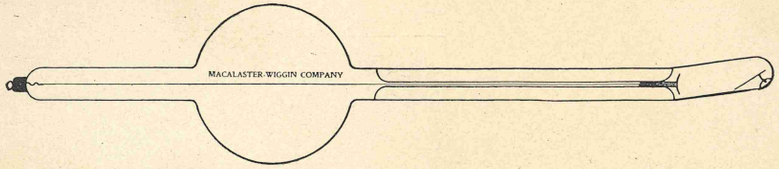


When used in series with an x-ray tube, the presence of inverse rays may be instantly detected. The tubes are substantial and will last for a long time.

The "Century" Unipolar High Frequency X-Ray Tube

(Patented)

No. 60. Code Word, Kranz. Price, $5.50



This Unipolar High Frequency X-ray Tube, or electrode, was designed by Frank A. Davis, M.D., of this city, for use in the orifices of the body, where localized x-ray and high frequency effects are desired.

This Tube is especially useful in the treatment of diseases of the prostate gland, but may be used with advantage in seminal vesiclitis, ovaritis, salpingitis, adhesions, etc. It is also well adapted for the treatment of cancerous conditions of the orifices where direct contact is desirable.

Oscillator, or Small High Frequency Coil

No. 172. Code Word Coldor. Price $25.00

The Oscillator will be found very efficient for use with vacuum electrodes, for producing high frequency effects, and it may be used to advantage for energizing our Ozone Generator, or Century tubes.

It may be run on either alternating or direct current from 100 to 125 volts.

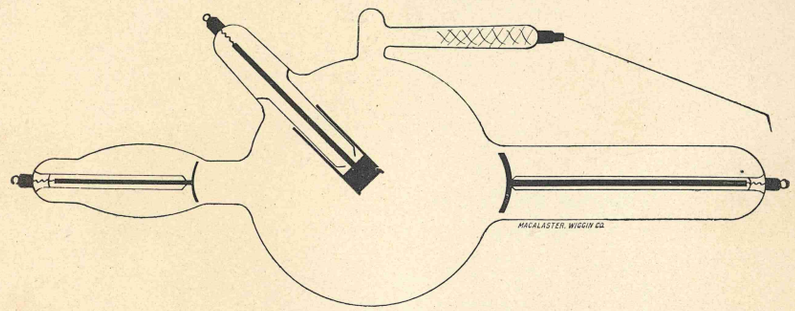
Connecting Cords

With Automatic Winding Device.

No. 142. Code Word, Fiblant. Price, $3.50

For Largest High Frequency Coils

No. 20. Code Word, Hioides. Diameter, $5\frac{1}{4}$ inches. Price, $18.00
No. 21. Code Word, Hiphalt. Diameter, 6 inches. Price, 20.00



As will be seen in the illustration, the target of this tube is heavy, and will therefore stand much hard running and may be used on large apparatus. Owing to the great weight of the target, the tube heats slowly, if at all, and is fine for picture work: penetration and definition the best.

Owing to superior merit, the tube has been adopted as the standard by all the manufacturers and dealers in high frequency coils in this country and thousands of them are in use.

For High Frequency Coils

No. 10. Code Word, Hinlegten. Diameter, $5\frac{1}{4}$ inches. Price, $14.00

Similar to the above except that a lighter target is used.

High Frequency Fulgeration Handle

No. 149. Code Word, Fulano Price, $2.50

Very useful for the removal of warts, moles, and small growths.

Chicago Factory Section

To our customers in the central and far West, we wish to suggest that the facilities of our Chicago factory are at their disposal.

We have succeeded the well-known firm of G. Heinz Co. and are now located in a commodious factory at 160-164 East Lake Street. The Chicago factory will continue to manufacture the same line of tubes as formerly, but to avoid confusion it has become necessary to change the type numbers of these tubes. As several forms are duplicates of those "Made in Boston," they will not be illustrated a second time.

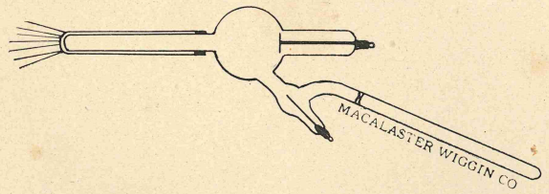
The following tubes are manufactured in both Chicago and Boston.

Static Tubes, page 10,
High Frequency X-ray Tubes, page 12,
Cancer Tubes, page 13,
High Frequency Electrodes, pages 27 to 29.

A stock of the "Made in Boston" tubes, as well as the protective goods and accessories, will be carried in Chicago and may be ordered from there if preferred.

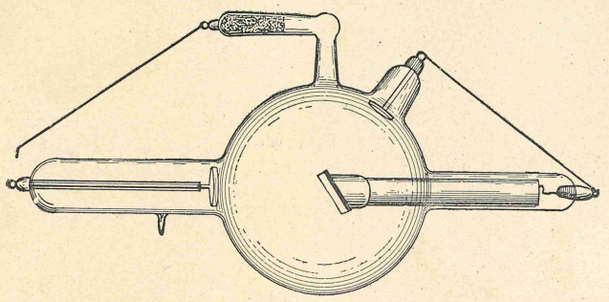
Cleaves' Type of Cancer Tube

No. 110. Code Word, Careme. Price, $10.00



Specially useful in treating cases of cancer of the uterus. This tube has a detachable water jacket, which keeps it cool at all times during the treatment. The x-rays are directed towards end of tube.

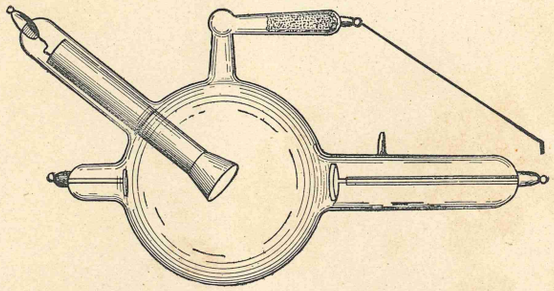
Radiographic Tubes for Heavy Work



No. 91. Code Word, Charfron. Diameter, 6 inches.
Former Chicago No. 13. Price, $20.00

No. 92. Code Word, Charge. Diameter, 7 inches.
Former Chicago No. 14. Price, 25.00

No. 93. Code Word, Chekey. Diameter, 8 inches
Former Chicago No. 15. Price, 30.00



No. 94. Code Word, Chekoa. Diameter, 6 inches.
Former Chicago No. 13A. Price, $20.00

No. 95. Code Word, Chermes. Diameter, 7 inches.
Former Chicago No. 14A. Price, 25.00

No. 96. Code Word, Chermito. Diameter, 8 inches.
Former Chicago No. 15A. Price, 30.00

The two types of tubes illustrated differ only in as much as the anode of one goes in from the end, the other from the side of the bulb.

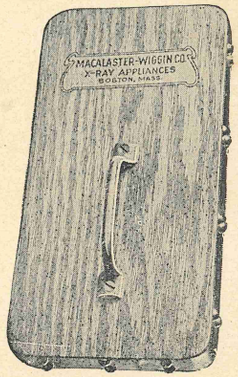
They are well made, the targets are massive, the cathodes are heavy, and both are securely supported in the bulb.

The penetration and detail procurable are fine.

These tubes are manufactured only in our Chicago factory.

Penetration Gauge

No. 104. Code Word, Grotesque. Price, $5.00

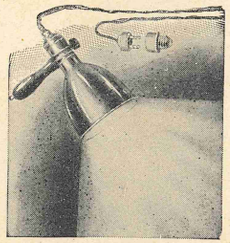


This Gauge may be used with any fluoroscope, to measure the penetration of the x-rays. Ten fields are provided, the density increasing in geometrical progression. The Gauge is small enough to be carried in the pocket; and, if desired, it may be permanently attached to the bottom of a fluoroscope.

The hand of the operator is completely protected from the rays by sheet lead.

Portable Therapeutic Lamp

No. 159. Code Word, Fosegoso. Price, $5.00

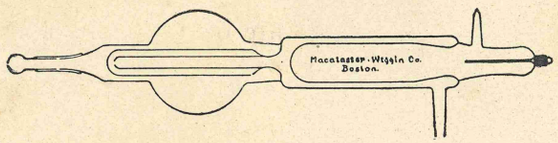


A fifty candle-power stereopticon lamp is enclosed in a highly polished parabolic reflector fitted with a convenient handle, making a fine-looking and efficient outfit.

Blue, Amber, or Red Screens, each	$1.50
Extra Lamp	1.50

Ozone Generator

No. 171. Code Word, Ogling. Price, $10.00



The Ozone Generator shown in the illustration can be attached to any high frequency coil or static machine, one pole only being used.

Enough oil should be put into the top chamber of the Generator so that the ozone, passing through the instrument, is forced through the oil, which absorbs and neutralizes any nitrous acid which may be formed.

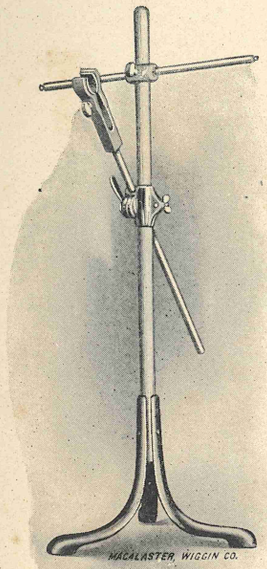
A good combination of oil, very efficient and pleasant to use, is oil of eucalyptus, one part, and oil of pine needles, two parts, although there are many others that may be used, suiting the individual taste.

The patient should press the rubber bulb, forcing air into the ionizing chamber, where it is changed into ozone and forced through the oil, and thus to the patient. A nebulizer or any other source of compressed air may be used in place of the bulb if desired.

The equipment is convenient, easy to handle, successful, and the same results may be obtained as from the highest priced apparatus. It will be found especially useful in diseases of the respiratory tract.

A supply of oil and a rubber pressure bulb are furnished with each Generator.

Tube Stands



No. 135. Code Word. Firmary. Price, $12.50

The Tube Stand shown in the illustration is well made, firm and reliable. The legs are of heavy cast-iron, the two arms are of wood, the clamp is of brass fitted with large wing nuts so that the heaviest tube may be held without danger of slipping.

No. 130. Code Word, Finados. Price, $10.00

This Stand is similar to the above except that a wooden clamp is furnished instead of a brass one. Even with this, it is possible to set the clamp up firmly and support a heavy tube in safety. The base is the same as in the higher priced one, the only difference being in the clamp.

No. 132. Code Word, Finage. Price, $2.00

This is a small Stand and should be used only to support the smallest and lightest tubes.

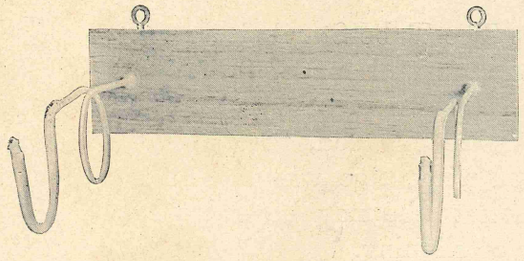
X-Ray Plates

	Per dozen	*Per dozen*
Size, 5 x7	With 2 sets Envelopes, $1.10	With 12 sets Envelopes, $1.40
Size, 6½x8½	With 2 sets Envelopes, 1.65	With 12 sets Envelopes, 2.10
Size, 8 x10	With 2 sets Envelopes, 2.40	With 12 sets Envelopes, 3.00
Size, 10 x12	With 2 sets Envelopes, 4.20	With 12 sets Envelopes, 5.25
Size, 11 x14	With 2 sets Envelopes, 6.00	With 12 sets Envelopes, 7.25

Unless otherwise specified 12 sets of envelopes will be furnished with each dozen Plates ordered.

Tube Racks

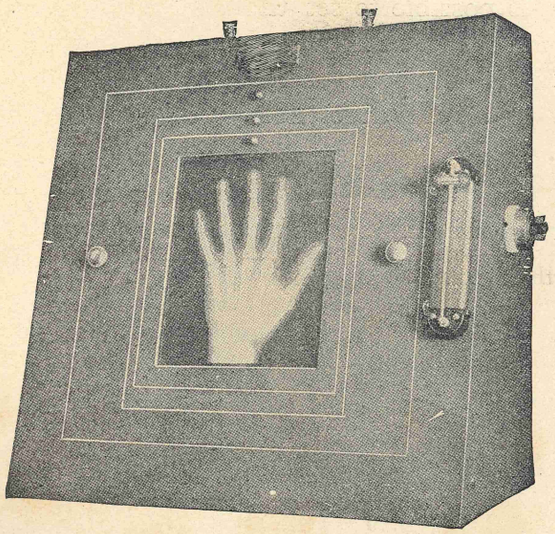
No. 136. Code-Word, Recipero. Price, $1.00



Small, to hold one tube only, made of polished oak, supports of spring wire, rubber covered.

Diagnostic Box

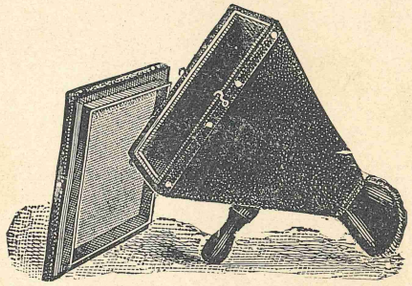
No. 112. Code Word, Sortance. All sizes from 5 x 7 inches to 14 x 17 inches. Price, $25.00



The Box is of oak, nicely finished. A number of frames arranged to take plates of various sizes are furnished. The inside is enamelled white and a sufficient number of electric lamps are so arranged as to furnish a large amount of light. A rheostat is attached to the Box so that the lamps may be dimmed to give the proper illumination for each negative. The front is of ground glass. When viewed with the Box a surprising amount of detail will be shown in an ordinary x-ray negative.

Fluoroscopes

The best platinum barium cyanide crystals are used on these screens and treated to a special coating, making them last much longer than the ordinary varieties. Each screen is detachable, glass covered, and absolutely protected from dust and dirt.



PRICES

(Subject to change without notice)

No. 105. Platinum Barium Cyanide Fluoroscope, 5 x 7 Code Word, Earshrift.	$12.50
No. 106. Platinum Barium Cyanide Fluoroscope, 6 x 8 Code Word, Earthling.	16.00
No. 107. Platinum Barium Cyanide Fluoroscope, 8 x 10 Code Word, Earthly.	24.00
Screens only, price per square inch.	.25
Unmounted Tungstate of Calcium Screens, per square inch.	.15

Special Connecting Cords

Very heavily insulated wire, clasp on one end and snap hook on other.

No. 134. Code Word, Financial. Price, $2.00

X-OL, The New Developer for X-Ray Plates

X-OL Salts per one-pound bottle. Price, $0.35
X-OL Developer, per one-ounce bottle. Price, .30

The X-OL Developer combines the good qualities of strong and contrasty developers, and brings out bone structure, layers of clothing, flesh, folds in the skin, nails, and other detail with striking distinctness.

Designed especially for use with X-ray Plates.

X-Ray Plate Cabinet

No. 148. Code Word, Borrifo Price, $5.00

Lead lined, large enough for two dozen 11-inch x 14-inch plates.

Lead Glass Tube Shields

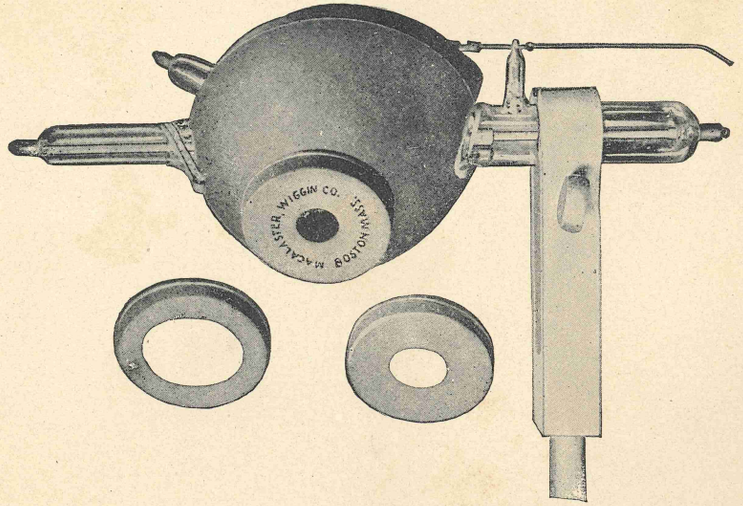
No. 89. Code Word, Sourias. Price, $12.00

These Shields are made of very thick glass containing a large amount of lead. The slots are accurately cut and the edges are smooth: altogether they are the finest Shields procurable. Will hold tubes up to, and including, 8″ in diameter.

X-Ray Shields

No. 98. Code Word, Songful. The Shield and three Diaphragms. Price, $8.00

It is well recognized that no x-ray tube should be run without some efficient shielding device for both operator and patient. The danger of the x-rays, when improperly used, need not be dilated upon. The Shield illustrated herewith is made of rubber having in composition with it a substance which is impervious to the x-rays, and is at the same time a non-conductor, so that there is no danger of getting a spark from the tube to the Shield and, consequently, a punctured tube.



The Shield is heavy, as it must be to cut off the x-ray, but not so heavy but that it may be placed over and supported by an x-ray tube; it fits all tubes up to and including six inches, and covers them very completely. It may be readily slipped on or off in but a moment's time; and a very simple device

is used for holding it in place. No harm will be done if it is left on the tube at all times. When this Shield is used, both the operator and the patient, except the part under treatment, are effectually protected. No harmful rays will penetrate the material from which the Shield is constructed.

With each Shield sent out, three caps, or diaphragms, are furnished—as illustrated; the opening through which the rays pass may therefore be changed at will, the smallest being one inch and the largest three inches. Not only are these diaphragms useful in treatment, but also in making x-ray pictures, cutting off, as they do, all stray or secondary rays, thus improving the definition and detail most wonderfully.

Special Support

TO HOLD TUBE AND SHIELD

No. 143. Code Word, Feverly. Price, $5.00

Owing to the great weight of the Tube Shield it is advisable to support the tube from both ends. This device may be used in connection with any ordinary tube stand, and will relieve the tube of the weight of the Shield, effectually support them both, and prevent breakage.

X-Ray Protective Hood

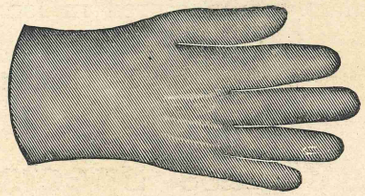
No. 153. Code Word, Somonte. Price, $10.00

This Hood is well made, fits the head nicely and is provided with cape to protect the shoulders.

Special Garments made to order. Prices on application.

Opaque Gloves

No. 102. Code Word, Sonoras. Price, per pair, $6.50



These Gloves are made of the same material as the shields. They form a very effectual protection and should be used in all cases where the operator uses the fluoroscope or where the hands are exposed to the rays at all. The Gloves are as thick and heavy as may be possible and yet flexible enough so that the operator may use his hands without difficulty.

Gauntlet Gloves, Extra Heavy

No. 152. Code Word, Sonometer. Price, per pair, $10.00

These Gloves are heavier than the above and have gauntlets which fully protect the wrists of the operator.

X-Ray Protective Apron

No. 103. Code Word, Sonore. Price, $10.00

These Aprons are made of opaque cloth and are an effectual protection to all parts of the body.

Apron, Extra Heavy

No. 87. Code Word, Sonst. Price, $20.00

This Apron is more than double the weight of the former and offers very effectual protection.

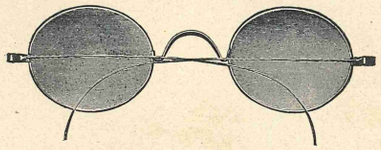
X-Ray Protective Cloth

Price, per square foot, $1.00.

This material is manufactured in long strips 35 inches wide, any length cut to order. Extra heavy material manufactured to order, 1-8, 3-16 or 1-4 inch thick. Prices on application.

Lead Glass Spectacles

No. 97. Code Word, Soonest. Price, per pair, $2.75



The glass is heavy and the lenses large, thus offering very complete protection to the eyes.

LEAD GLASS. Regular sizes in stock:

7¼ x 9½ inches, $1.75. 9½ x 12 inches, $3.00. 12 x 19 inches, $6.00.

Furnished in flat sheets, very opaque, for use in cabinets and other devices. Any size, other than stock, cut to order, five cents per square inch.

X-Ray Foil

Code Word, Blemmyer (about 30 x15 in. equals 1 lb.) Price, per lb., $0.25

For protection of parts not intended to be treated with x-rays.

Protective Screen

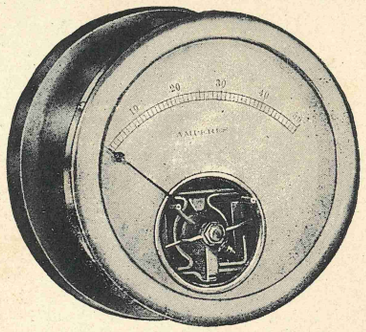
No. 99. Code Word, Traphea. Price, $25.00

Two heavy lead panels, black covered, form the lower part of the Screen: the top panel has in it a special lead glass window: the whole is enclosed in a fine oak frame. This Screen is an effectual protection to the operator.

The dimensions are 6 feet high and 30 inches wide.

X-Ray Mil-Ammeters

No. 201.	Code Word, Sotaque. Face, 3 1-2 inches diameter.	Price, $15.00
No. 202.	Code Word, Sotroco. Face, 6 inches diameter.	Price, 18.00
No. 203.	Code Word, Sotoar. Face, 8 inches diameter.	Price, 25.00



A Mil-ammeter is of the uttermost importance to every radiographer and is an unfailing index to the work being done in an x-ray tube. Should be used in all cases, either for treatment or picture work.

These instruments will measure with great accuracy the current flowing through an x-ray tube when either an ordinary coil or static machine is used. They will not, however, work in connection with any high frequency coil. Made in three sizes and unless otherwise ordered will be calibrated to read from 0 to 25. As the 0 is in the center of the scale and the hand moves in either direction, the meter may be connected to either side of coil without regard to polarity.

The finish of the case is black enamel with nickel trimmings.

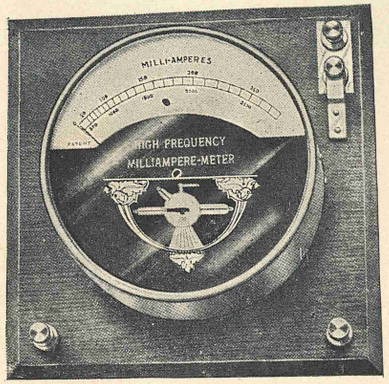
GUARANTEE

The instruments are all hand calibrated and are guaranteed accurate. Should one prove inaccurate or defective within a year from date of shipment, it will, if returned to our works, be repaired and recalibrated free of charge.

High Frequency Mil-Ammeters

No. 114. Code Word, Sostegno. Price, $30.00

The Meter shown will record accurately the dosage of any high frequency or D'Arsenval current. It has two scales, the high reading to 2500 milliamperes, and the low to 250. The case is of brass, well finished and is mounted on an oak base.



Support for Mil-Ammeter

No. 210. Code Word, Fewels. Price, $5.00

Made of wood, and may be attached to any tube stand or other support. Holds the meter very securely.

Ammeters

No. 145. Code Word, Sotanos. Price, $25.00

A fine instrument, accurate and reliable, furnished for either alternating or direct current. Scale reading from 0-25, 0-50, or 0-80. In ordering specify current on which it is to run and scale desired.

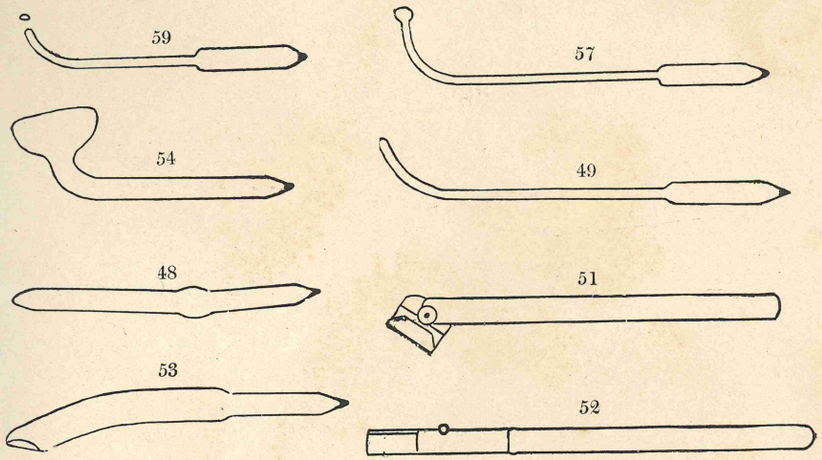
Volt Meters

No. 146. Code Word, Sotaina. Price, $25.00

This instrument may be had in scale reading from 0-130, 0-150, or 0-250. In ordering, state whether current is alternating or direct, and scale wanted.

Vacuum Electrodes

No. 38. Set of Electrodes. Code word, Koukarien. Price $4.00



The above set is all that is required for ordinary work. Price including rigid or adjustable angle handle as requested.

Single Electrodes to Fit Universal Handle

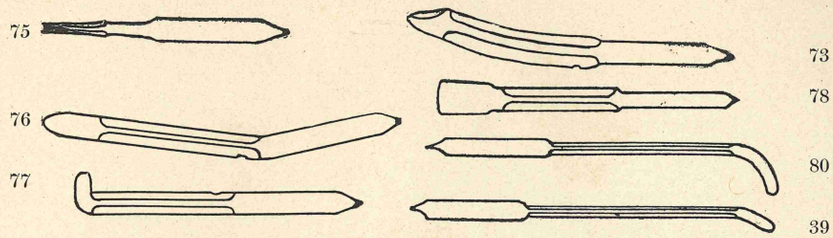
No. 47.	U-Shape.	Code Word, Koudvuur.	$1.00
No. 48.	Rectal.	Code Word, Kouler.	.75
No. 49.	Urethral, curved.	Code Word, Koulougli.	.75
No. 50.	Urethral, straight.	Code Word, Koumiss.	.75
No. 51.	Fibre handle.	Code Word, Koukleum.	.75
No. 52.	Glass handle.	Code Word, Koulbac.	.75
No. 53.	Vaginal, with cupped end.	Code Word, Koupara.	.75
No. 54.	General external work.	Code Word, Koupholite.	.75
No. 55.	Single eye.	Code Word, Kouseband.	.75
No. 56.	Double eye.	Code Word, Kourkho.	1.00
No. 57.	Throat.	Code Word, Kousso.	.75
No. 58.	Hammer.	Code Word, Koutsters.	.75
No. 59.	Nasal.	Code Word, Kourakin.	.75
No. 62.	External throat.	Code Word, Kraag.	.75

It has always been our aim to manufacture only the best, and in this set, as well as in our other Electrodes, tough, heavy glass is used, and the workmanship is of the finest, making the set durable and trustworthy.

Insulated Vacuum Electrodes

PATENTED

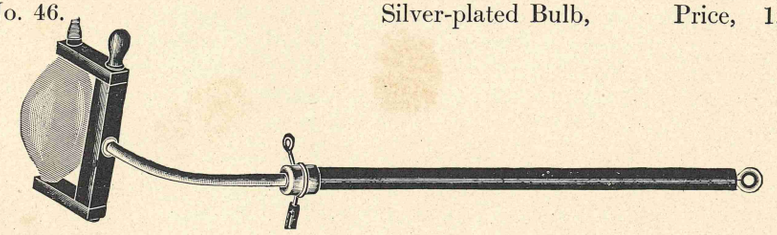
No. 73.	Vaginal	$1.50	No. 78.	Tongue	$1.50
No. 75.	Ear	1.50	No. 79.	Throat	1.50
No. 76.	Rectal	1.50	No. 80.	Urethral	1.50
No. 77.	Post Nasal	1.50	No. 39.	Nasal	1.50



It is a well-known fact that when an ordinary electrode is used in any of the cavities of the body a large part of the high frequency current passes off at the first point of contact. In the forms here illustrated, the current is delivered from the tip only and this may be brought into contact with just the desired area to be treated.

Piffard's Vacuum Rolling Rheophore

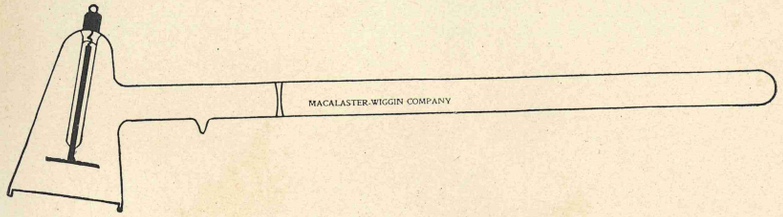
No. 44.	Code Word, Kraagman.	Handle, Vacuum Bulb and extra Bulb.	Price, $3.50
No. 45.		Extra Bulbs, each,	Price, .75
No. 46.		Silver-plated Bulb,	Price, 1.50



This appliance will be found exceptionally convenient where the current is to be applied to a large area, or in cases where the skin of the patient is moist, in which case the bulb will not stick.

Cataphoresis Vacuum Electrode

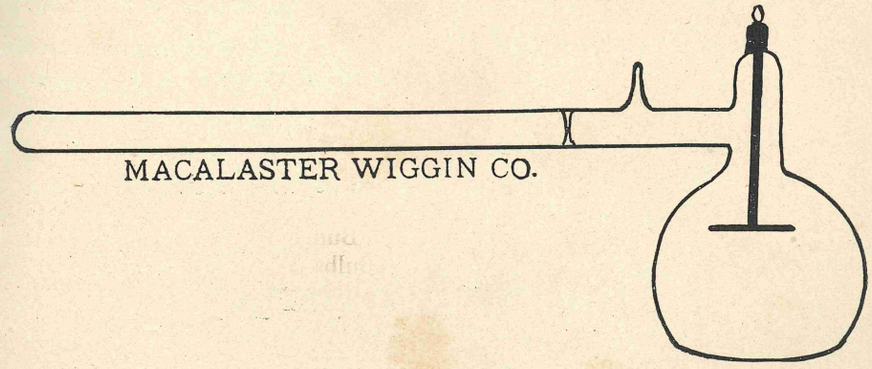
No. 82. Code Word, Kraftlos. Price, $4.00



The face of this Electrode is recessed to securely hold pieces of blotting paper or asbestos. This should be saturated with the desired medicant, which will be driven into the patient by the bombardment from the cathode.

Condenser Electrode

No. 84. Code Word, Kragen. Price, $3.00

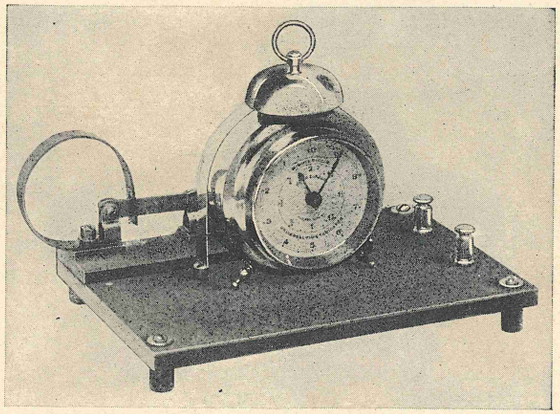


This Electrode has a bulb about three inches in diameter and has sealed into it a cathode, the handle forming a part of the electrode. When effects are to be localized and special bombardment of any area is desired, this Electrode will be found unexcelled. More current may be delivered to the patient than by any other form of vacuum electrode.

Electrodes may be had pumped to a red or blue vacuum: if green, add to above price fifty cents.

Time Switch

No. 160. Code Word, Infide. Price, $7.50



Here is an Interval Timing Switch which may be used to automatically stop your coil, static machine, vibrator, or therapeutic lamp at the end of a treatment: especially valuable as a time saver where two or more patients are treated at the same time. The switch proper is of the single pole knife variety. The contacts are substantial and there is no possibility of sticking. Should be used on apparatus which consumes not more than fifteen amperes.

Time Switch (large)

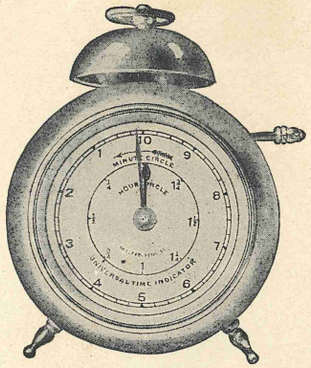
No. 161. Code Word, Influence. Price, $12.00

The same as above except that the Switch is double pole and intended for use with large apparatus where currents of twenty-five or more amperes are to be broken. The Switches may be used on either alternating or direct currents without change.

On both Switches the same interval timer is used as is illustrated on following page. An ordinary clock may be substituted for the interval timer when specially ordered.

Interval Timer

No. 147. Code Word, Infield. Price, $3.50



This Timer was especially designed for physicians' use to keep them informed of their appointments, time their treatments, or remind a caller that time is passing.

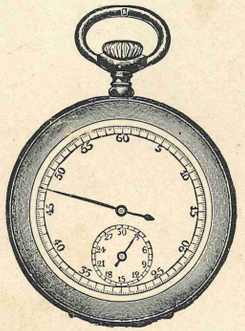
When giving an electro-therapeutic treatment this Timer will be found unequalled and the busy physician will save a large amount of time, and the patient know that he is getting the proper length of treatment—no more and no less.

To operate: — the set button at the centre of the back of the Timer, as in an ordinary clock, is turned in the direction of the arrow. For a ten-minute interval, the minute hand is turned around once; for twenty minutes, twice, etc., then the lever (also on the back) is depressed. This starts the clock and the hands slowly turn back to ten, the alarm rings: the clock stops and is ready for use again.

The Timer may be set from any period from a quarter minute to two hours, keeps good time, is well made, and reliable.

Stop Watch

No. 176. Code Word, Infidos. Price, $10.00



This Watch is put up in a nice nickel case, arranged for stem winding and setting, records the elapsed time in fractions of one-fifth of a second to thirty minutes, is well made, accurate, and will run for a long time without repairs.

Books

	Price, Postpaid
Electro-Therapeutical Practice, Neiswanger.	$2.50
Electricity, the Methods of its Employment in Removing Superfluous Hair and other Facial Blemishes, Hayes.	1.00
Roentgen Rays in Medicine and Surgery, Williams.	6.00
Radiotherapy, Phototherapy and High Frequency Currents, Allen.	4.50
Radiotherapy and its Application to Skin Diseases, Belot.	4.50
Currents of High Potential of High and Other Frequencies, Snow	2.50
Elements of General Radiotherapy, Freund.	5.00
Mechanical Vibration Therapy, Snow.	2.50
Practical X-Ray Therapy, new and revised edition, Eberhart.	1.50
Therapeutics of Radiant Light and Heat, Snow.	2.00
Static Electricity and the Uses of the X-Ray, Snow.	3.00
Electro-Therapeutic Guide, Bennett.	2.00
High Frequency Currents, Crook.	2.00
High Frequency Currents, Strong.	3.00
High Frequency Therapy, Eberhart.	1.50
Roentgen Rays and Electro-Therapeutics, Kassabian.	3.50
High Frequency Electric Currents in Medicine and Dentistry, Monnell.	4.00
Practical Handbook of Medical Electricity, McIntosh.	3.00
X-Ray and High Frequency Currents, Judd.	1.50
Vibratory Technique, Eberhart.	1.00

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